

Research, Development, and Acquisition

Airworthiness Qualification of U.S. Army Aircraft Systems

**Headquarters
Department of the Army
Washington, DC
7 July 2000**

UNCLASSIFIED

SUMMARY of CHANGE

AR 70-62

Airworthiness Qualification of U.S. Army Aircraft Systems

This revision--

- o Incorporates risk management provisions and references Army Regulation (AR) 385-16 for risk acceptance (para 2-6).
- o Adds description of contractor flight release complementing DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C requirements (paras 2-1, 3-5, and 3-6).
- o Adds limits for continued airworthiness to prescribed limits (para 3-7).
- o Clarifies user-requested modification policy and responsibility (paras 1-4, 2-7).
- o Describes interfaces with AR 95-1 (paras 2-6, 3-7).
- o Provides current addresses and is reformatted to current publication practices.
- o Adds operation of carry-on equipment with airworthiness impact (paras 1-4, 2-1, and 2-7).
- o Adds airworthiness assessment of commercial off-the-shelf equipment (paras 1-4, 2-1, and 2-7).
- o Adds a glossary and index.
- o Adds appendix B figure showing airworthiness process elements to provide a visual reference.

Effective 7 August 2000

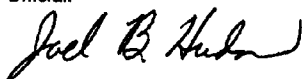
Research, Development, and Acquisition

Airworthiness Qualification of U.S. Army Aircraft Systems

By Order of the Secretary of the Army:

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General, United States Army
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Secretary of the Army

History. This revision incorporates risk management interfaces, describes contractor flight releases, adds requirements for continued airworthiness, provides modification request policy, adds assessment of in-flight operation of carry-on equipment and commercial off the shelf equipment, and provides current addresses and other clarifications.

Summary. This regulation implements Army policy for airworthiness qualification of aircraft systems, subsystems, allied equipment undergoing development, modifications added to Army aircraft, and in-

flight operation of carry-on equipment that impacts airworthiness of the aircraft.

Applicability. This regulation applies to—

a. All Department of the Army activities involved in the development of aircraft systems, aircraft subsystems, aircraft allied equipment, or carry-on equipment for in-flight use on Army aircraft.

b. All Active Army, National Guard, and Army Reserve activities that use, operate, or maintain Army aircraft when they propose to modify or will operate and maintain an aircraft which incorporates modifications to the qualified or standard configuration. It also applies when these activities plan to operate carry-on equipment in-flight on Army Aircraft.

c. During mobilization, policies contained in this publication can be modified by the proponent to meet special circumstances.

Proponent and exception authority.

The proponent of this regulation is the Deputy Chief of Staff for Logistics. The Deputy Chief of Staff for Logistics has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. The proponent may delegate this approval authority, in

writing, to a division chief within the proponent agency in the grade of colonel or the civilian equivalent.

Army management control process.

This regulation contains management control provisions in accordance with AR 11-2 but does not identify key management controls that must be evaluated.

Supplementation. Supplementation of this regulation and establishment of command and local forms are prohibited without prior approval from Deputy Chief of Staff for Logistics (DALO-AMV), 500 Army Pentagon, Washington, DC 20310-0500.

Suggested Improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Commander, USAAMCOM, ATTN: AMSAM-RD-AE-I, Redstone Arsenal, AL 35898-5000.

Distribution. Distribution of this publication is available in electronic media only and is intended for command levels B, C, D, and E for Active Army, Army National Guard of the U.S., and U.S. Army Reserve.

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Chapter 1 Introduction

1–1. Purpose

This regulation prescribes the policies, responsibilities, and procedures for airworthiness qualification of aircraft systems and subsystems, including the installation of allied equipment and modifications to Army aircraft that are assigned, bailed, borrowed, loaned, leased, otherwise authorized for operation by Army personnel, or after modification under an Army contract.

1–2. References

Required and related publications are listed in appendix A.

1–3. Explanation of abbreviations and terms

Abbreviations and special terms used in this regulation are explained in the glossary.

1–4. Responsibilities

a. Commanding General, U.S. Army Materiel Command. The Commanding General, U.S. Army Materiel Command (CG, AMC),—

- (1) Exercises staff supervision for airworthiness qualification within the Army.
- (2) Ensures that product improvement programs (PIP) for aircraft systems and their major components include appropriate efforts for airworthiness qualification.
- (3) Ensures that approved configurations of aircraft systems, including officially promulgated modification work orders (MWO), have been determined to be airworthy before issuing the item to the user.

b. Commanding General, U.S. Army Aviation and Missile Command. The Commanding General, U.S. Army Aviation and Missile Command (CG, USAAMCOM), is the approving authority for the airworthiness of Army aircraft for which USAAMCOM has engineering cognizance. The CG, USAAMCOM,—

- (1) Develops and implements a fully coordinated program for airworthiness qualification for aircraft systems, subsystems, and allied equipment.
- (2) Reviews all planned Army aircraft development programs; off-the-shelf procurements; and alterations to systems, subsystems, and allied equipment affecting airworthiness to establish requirements for airworthiness qualification.
- (3) Identifies and coordinates appropriate test requirements with those agencies that will witness or confirm that the specified qualification requirements have been met.
- (4) Grants engineering approval for individual documents that are needed for airworthiness qualification of aircraft systems, subsystems, and allied equipment.
- (5) Issues the official notice of airworthiness release for Army tests or operations, statement of interim airworthiness qualification, and statement of airworthiness qualification, together with the applicable flight envelope and specific operating instructions. This notice includes—
 - (a) Approval of all qualification data published in technical manuals for the system; and
 - (b) Procedures, cautions, warnings, limitations, and performance data.
- (6) Ensures that the maximum degree of safety is applied through the practical application of systems safety engineering.
- (7) Establishes and maintains a single office for the execution of all airworthiness qualification actions.
- (8) Provides a single point of contact between the Army and other agencies (such as the Federal Aviation Administration, National Aeronautics and Space Administration, U.S. Air Force, and U.S. Navy) performing qualification or certification tasks on Army aviation materiel.
- (9) Issues appropriate delegation of authority to activities with mission requirements for prototype or unique aircraft systems that have adequate procedures in place and engineering cognizance of the aircraft system commensurate with the requested authority.

c. Commanders of major subordinate commands and commanders of separate installations and activities reporting directly to Headquarters, AMC. These commanders will participate in and furnish personnel for, airworthiness evaluations on aircraft systems, subsystems, or aircraft allied equipment under their cognizance.

d. Heads of appropriate Army activities, program executive office, program managers, project managers, and product managers. The head of each appropriate Army activity and program executive office, program manager, project manager, or product manager (when they develop or modify aircraft, aircraft allied equipment, or carry-on equipment for in-flight operation) is responsible for—

- (1) Funding for development and qualification.
- (2) Ensuring that the airworthiness requirements of USAAMCOM or other applicable airworthiness authority have been met.
- (3) Ensuring all other regulatory requirements, such as spectrum management clearances, are met.
- (4) Obtaining airworthiness release prior to fielding the aircraft system.

(5) For carry-on equipment, all development and assessment other than airworthiness.

e. Operational unit commanders. All commanders of operational units will ensure that—

(1) An airworthiness release is requested through their major Army command (MACOM) and obtained before modifying or using any aircraft incorporating a modification (see para 2-7) to the qualified or standard configuration assessed as impacting airworthiness and

(2) A copy of all applicable airworthiness release and interim statement of airworthiness qualification are located in the aircraft during its operation and when it is transferred until the document is superseded or the aircraft system is restored to the unmodified qualified or standard configuration.

Chapter 2

Airworthiness Qualification

2-1. Airworthiness requirements for flight, other piloted, and test operations

a. Army aviators will not operate aircraft in the performance of official duties if there is no airworthiness release, interim statement of airworthiness qualification, statement of airworthiness qualification, or airworthiness approval.

b. Army aviators qualified and approved as flight crew members per enclosure 2 of DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C may operate aircraft with a contractor pilot in command under a contractor flight release.

c. All modifications impacting airworthiness (see para 2-7) will subject the aircraft system, subsystem or allied equipment to requalification. The USAAMCOM will be consulted in the determination of which modifications would or would not measurably affect the airworthiness of an aircraft system, subsystem or allied equipment.

d. An airworthiness release, interim statement of airworthiness qualification or statement of airworthiness qualification is required for all modifications impacting airworthiness (see para 2-7) of Army aircraft for which USAAMCOM has engineering cognizance. Issuance of an airworthiness release is based on a technical data review and/or inspection of the installed modification.

e. An airworthiness approval is required for modifications impacting airworthiness (see para 2-7) of Army aircraft for which USAAMCOM does not have engineering cognizance or has delegated responsibility (for example, a Federal Aviation Administration type certification of off-the-shelf aircraft). The airworthiness approval is required prior to first flight. Issuance of the airworthiness approval is based on the technical data requirements established by the agency that exercises engineering cognizance over the aircraft system.

f. A contractor flight release is required as supplemental service guidance for ground and flight operations (see definitions in DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C) of new development aircraft and modifications impacting airworthiness (see para 2-7) of an Army aircraft for which USAAMCOM has engineering cognizance and the contracted effort requires incremental release for confirmation or establishing new operating limits based on new technical data and test results.

g. Development of, or adoption of commercial off the shelf (COTS), carry-on equipment with a mission requirement for operation in-flight will include an airworthiness assessment (see para 2-7b). The USAAMCOM will be consulted in the determination of which operation of carry-on equipment would or would not measurably affect the airworthiness of an aircraft system, subsystem or allied equipment. Based on the assessment, a determination will be made of the extent of airworthiness qualification and appropriate documentation required for in-flight operation.

h. Adoption of COTS equipment for Army aviation use will include an airworthiness assessment (see para 2-7c). Based on the assessed airworthiness impact, appropriate airworthiness qualification, and a contractor flight release, airworthiness release, interim statement of airworthiness qualification or statement of airworthiness qualification will be required for installation and operation of the COTS equipment.

2-2. Airworthiness authority

a. The CG, USAAMCOM, is the approving authority for the airworthiness of Army aircraft for which USAAMCOM has engineering cognizance. Airworthiness approval will result from a demonstrated capability of an aircraft or aircraft subsystem or component, including modifications, to function satisfactorily when used within prescribed limits.

b. Other recognized airworthiness authorities are the Federal Aviation Administration, National Aeronautics and Space Administration, U.S. Air Force, U.S. Navy, or a foreign authority whose airworthiness approval has been accepted by a U.S. agency. The appropriate authority is the one exercising engineering cognizance over the aircraft system for which the airworthiness approval is granted. This approval will result from a demonstrated capability to function satisfactorily when used within prescribed limits and be in the form of any technical document that provides operating instructions and limitations necessary for safe operation and flight of an aircraft system, subsystem, or allied equipment.

2-3. Requesting airworthiness release approval

a. Requests for contractor flight releases, airworthiness releases, and/or interim or complete airworthiness qualification for Army aircraft for which USAAMCOM has engineering cognizance will be forwarded to the Commander, USAAMCOM, ATTN: AMSAM-RD-AE-I, Redstone Arsenal, AL, 35898-5000. Requests normally will come through the materiel developer (such as, the Program Executive Office or the system's Program/Project/Product Manager) or from the field through a MACOM.

b. Requests for airworthiness approval for major modifications installed on aircraft not under USAAMCOM engineering cognizance will be forwarded to the appropriate engineering cognizant agency (such as, the Federal Aviation Administration, National Aeronautics and Space Administration, U.S. Air Force, or U.S. Navy).

2-4. Basis for airworthiness determination

a. The first basis for an airworthiness determination is the complete collection of aeronautical design standards covering the engineering of aircraft systems and subsystems design and performance. The standards address individual systems and subsystems, their integration, and the integrated system of hardware with applicable software and crew in the loop. Aeronautical design standards provide an effective means for documenting current technology that is essential in the evaluation for airworthiness qualification. This collection includes—

- (1) Military and Federal civil agency specifications, standards, and handbooks.
- (2) Industrial specifications and standards (such as, those published by nationally recognized associations, committees, and technical societies), having coordinated status established under DOD policies and procedures.
- (3) Company specifications and standards when such documents are based on Government or industrial standards or are supported by technical evidence (such as analysis, test or operational results) of their effectiveness.
- (4) Design handbooks recognized by the engineering discipline.
- (5) Published design criteria based on past experience.
- (6) Published test and evaluation procedures and criteria.

b. The second basis for airworthiness determination is prescribed limits covering the full range of limitations for the safe and reliable use of the aircraft system, subsystem, or allied equipment as determined by analysis, tests, and operating experiences. These limitations include those covering crew requirements and—

- (1) Flight limits, such as airspeed; maneuvering; electromagnetic environment; and environmental restrictions on altitude, temperature, and other weather conditions.
- (2) Loading limits, including weight, center of gravity, fuel load, cargo, external store, and armament loadings.
- (3) Structural life limits and wear limits that are critical to continued safe operation.
- (4) Propulsion system limits such as propeller, rotor, and engine subsystem rotational speeds and start-up, shutdown, torque input, torque output, fuel grades, lubrication system temperature, and pressure limits.
- (5) Subsystem limits such as electrical load limitations and operating restrictions during degraded mode flight such as single boost or with automatic flight control system inoperative.
- (6) Maintenance procedures including intervals and conditions for inspection, replacement, and overhaul that are required for sustaining the continued airworthiness.

2-5. Airworthiness qualification process

a. Elements of the airworthiness process are diagramed in appendix B to assist in understanding how these elements are related. Airworthiness qualification procedures will make maximum use of recognized sound technical and management techniques. Aeronautical design standards establish the criteria used in qualification of aircraft as set forth in this regulation. Techniques used generally will be—

- (1) Engineering analysis, modeling, and simulations.
- (2) Formal inspections, design reviews, and safety assessments.
- (3) Contractor development tests.
- (4) Component qualification test of performance under specified conditions and duration.
- (5) Formal contractor demonstrations.
- (6) Government testing.

b. An airworthiness qualification specification for the total system will be published and made an integral part of the requirements document and its resulting contract. All qualification requirements for subsystems and components will also be included in this specification or be referenced in the specification.

c. Analyses, simulations, and testing will be conducted to demonstrate or verify compliance with applicable aeronautical design standards, demonstration addendum, and other technical characteristics cited in contracts. Airworthiness qualification testing will be integrated with contractor and other Government testing. The coordinated test program (CTP) will reflect the integration and results. Included, as applicable, will be—

- (1) Allied equipment testing.
- (2) Subsystems or component testing.
- (3) Total systems testing, including flight tests and demonstrations.

- (4) Analytical design substantiating reports.
- (5) Software verification.

d. Airworthiness qualification and technical safety data requirements will be included in requests for proposals and invitations for bids. Appropriate data items will be obtained from the data listed in DOD List 5010.12-L. These data requirements will be made a part of the applicable contract.

e. The design and performance criteria to be substantiated for airworthiness qualification will be established. These criteria will be included in the detailed specification or system description, and the airworthiness qualification data and demonstration requirements will be included in an airworthiness qualification specification for the aircraft.

f. Design and test guidance pertaining to airworthiness qualification and contractor flight releases will be provided to contractors, as required, through procurement channels.

g. If the proposed air item is determined not to be airworthy, USAAMCOM will immediately inform the appropriate agencies, citing specific reasons for disapproval and providing recommendations for further action to make qualification possible. In the case of developmental standard aircraft, this notification will include Assistant Secretary of the Army for Acquisition, Logistics, and Technology (ATTN: SAAL-SA), 103 Army Pentagon, Washington, DC 20310-0103; special mission aircraft notification will include Deputy Chief of Staff for Logistics (ATTN: DALO-AMV), 500 Army Pentagon, Washington, DC 20310-0500; and Deputy Chief of Staff for Operations and Plans (ATTN: DAMO-FDI (for intelligence missions), ATTN: MOSO (for special operations missions), or ATTN: DAMO-FDV (for all other missions), all at 400 Army Pentagon, Washington, DC 20310-0400). The CG, AMC, will be kept abreast of sensitive areas between USAAMCOM and industry or commodity commands.

h. Following successful accomplishment of the airworthiness qualification program, an airworthiness qualification substantiation report will be published. This report will contain, but not be limited to, the following:

(1) The degree of compliance with the design and performance criteria of the detailed specification or system description on a paragraph-by-paragraph basis.

(2) Consolidation of all significant airworthiness data accumulated during the testing conducted by the contractor and the qualifying agency.

(3) Documentation of all operating limitations, fatigue life of critical components, cautions, and warnings, together with technical justification.

i. Necessary procedures, placards, limitations, cautions, performance data, and so forth, obtained during the airworthiness qualification program will be published in technical manuals for applicable systems.

j. To preclude duplication of effort, an adequate file will be maintained of each airworthiness qualification completed. Copies of pertinent documents also will be furnished to the cognizant engineering project office within USAAMCOM and, if required, the program, project, or product manager.

k. The airworthiness release will require reporting the modification per DA PAM 738-751 (see DA PAM 738-751, chap 2) and updating the weight and balance records per AR 95-1 (see AR 95-1, chap 7).

l. The prescribed limits in an airworthiness release, interim statement of airworthiness qualification, or contractor flight release for modified aircraft have precedence over limits in the technical manual (TM) until the aircraft is restored to the standard or qualified configuration.

2-6. Risk management interfaces

a. Statements of airworthiness qualification and airworthiness releases are not a means to accept risk. All identified airworthiness hazards that can be mitigated will be addressed by the airworthiness qualification documentation. Any residual risk identified by the system safety risk determination process and the results of any subsequent approved System Safety Risk Assessments (SSRA) per AR 385-16 (see AR 385-16, para 1-5q and app B) will be included in the documentation supporting statements of airworthiness qualification and airworthiness release.

b. If the airworthiness status changes after qualification and operational fielding, the users will be notified by Safety of Flight (SOF) message or Aviation Safety Action Message (ASAM) per AR 95-1 (see AR 95-1, chap 6).

2-7. Assessing airworthiness impact

a. Modifications will be assessed for airworthiness impact. Airworthiness impact is the measurable affect that added or modified equipment and its installation has on the airworthiness of the aircraft system, subsystem or allied equipment. Modifications that impact airworthiness include—

(1) Changes that affect structural integrity, propulsion/drive system operation, aircraft performance, aerodynamic characteristics (including drag, control response, and stability), electromagnetic characteristics, navigational system effectiveness, flight control system power requirements and effectiveness, weight and balance of an air item, air crew station noise levels, restrict air crew vision or performance, or increase the danger to the crew in the event of an accident.

(2) Aircraft modifications incorporating a source of energy or can be energized to emit any form of radiation that may be hazardous, such as explosive ordnance, explosive or flammable fluids, laser energy, and so forth.

(3) Changes that affect the operating limits and/or emergency procedures prescribed by the military operators technical manual.

(4) Changes that affect the prescribed limits for continued airworthiness. These changes include additions, deletions, or reconfiguration of hardware and material substitutions, software revisions, and any repair or replacement not authorized in the technical manual.

b. Operation of carry-on equipment with a mission requirement for operation in-flight will be assessed for airworthiness impact. Airworthiness impact occurs when operation of that equipment can measurably affect the airworthiness of the aircraft system, subsystem or allied equipment. These include—

(1) Operation of carry-on equipment that energizes emission of electromagnetic energy that can affect any aircraft, subsystem or allied equipment controls, indicators, displays, or the navigational system effectiveness.

(2) Operation of carry-on equipment that emits light or sound energy that can raise air crew station noise levels, or distract and degrade air crew performance.

(3) Operation of carry-on equipment that cannot be secured with existing cargo restraints while in use, thereby increasing the danger to the operator and crew in the event of an accident.

(4) Operation of carry-on equipment energized to emit any form of radiation, gases, liquids, or debris that may be hazardous, such as explosive ordnance, explosive or flammable fluids, laser energy, and so forth.

(5) Operation of carry-on equipment, if intended use is, in lieu of a standard aircraft system, subsystem, or component function.

c. Commercial off the shelf equipment adopted for Army aviation use will be assessed for airworthiness impact. The assessment will include—

(1) Review of any existing airworthiness approval for potential adoption if applicable to the Army system.

(2) Determination of the airworthiness qualification impact of the COTS equipment and its installation on the authorized configuration.

Chapter 3

Airworthiness Documents

Section I

Types of Airworthiness Documents

3-1. Airworthiness release

An airworthiness release is a technical document that provides operating instructions and limitations necessary for safe flight of an aircraft system, subsystem, or allied equipment. This Army airworthiness approval is—

a. Based on the results of design analysis, engineering ground test, and/or flight test and

b. Required prior to operation of a new aircraft system, subsystem, or allied equipment or a modification (see para 2-7) to the qualified or standard configuration.

3-2. Interim statement of airworthiness qualification

An interim statement of airworthiness qualification is a document establishing a preliminary or provisional qualification status and an airworthiness release that is issued when an aircraft and/or its subsystems must be used before completing the full qualification process. This statement and airworthiness release is based on preliminary results of contractor and Government engineering tests. It lists all known or suspected conditions and limitations; provides precautions necessary for use of the aircraft system, subsystems, and allied equipment; and is updated as additional test data become available. The operator's technical manual is based on these limitations when applicable.

3-3. Statement of airworthiness qualification

A statement of airworthiness qualification is a final document establishing full qualification status and airworthiness release that is issued in conjunction with the Airworthiness Qualification Substantiation Report. This statement and airworthiness release is based on final results of engineering tests conducted on the aircraft and its subsystem or allied equipment. Issuance of this statement coincides with type classification Standard A, if applicable, and normally completes the airworthiness qualification program. Since all of the prescribed limits are provided to operational units in the technical manuals, the statement of airworthiness qualification is normally not sent to the field nor required to be kept with individual aircraft records.

3-4. Airworthiness approval

An airworthiness approval is any technical document that provides operating instructions and limitations necessary for safe flight of an aircraft system, subsystem, or allied equipment. This document is issued by the airworthiness authority agency (such as the Federal Aviation Administration, National Aeronautics and Space Administration, U.S. Air Force, U.S. Navy, or a foreign authority whose airworthiness approval has been accepted by a U.S. agency) exercising engineering cognizance over the aircraft system for which the airworthiness approval is granted. This approval is—

- a. Based on the results of design analysis, engineering ground test, and/or flight test and
- b. Required prior to operation of a new aircraft system, subsystem, allied equipment, or a modification (see para 2-7) to the qualified or standard configuration.

3-5. Contractor flight release

A contractor flight release is a technical document that provides a set of operating instructions and limitations (part of the service guidance) for contracted experimental or engineering test ground and flight operations (see definitions in DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C) of a new development or modification (see para 2-7) to an aircraft system, subsystem, or allied equipment. This release manages Government liability by establishing limits for prudent flight envelope exploration, that cannot be reasonably accomplished otherwise. The contractor flight release is based on the required and known results of design analysis, modeling and simulation, engineering ground test, and/or controlled flight test envelope expansion of an aircraft system, subsystem, or allied equipment.

Section II

Criteria for Airworthiness Document Application.

3-6. Contractor flight release application criteria

- a. The USAAMCOM has engineering cognizance.
- b. The Army contracted an effort that generates a prototype aircraft system, modification (see para 2-7), or change to existing prescribed limit.
- c. The contractor will conduct ground and flight operations per DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C to conduct experimental and engineering tests of the prototype or modification and/or explore extending the prescribed limit. The contractor flight release provides approved operating instructions and limitations that are part of the service guidance for contractor ground and flight operations when authorized by the Government flight representative (see definitions in DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C).
- d. A Government asset (aircraft system) and/or Government liability (ground and flight risk clause in contract) warrants Government liability management provisions.
- e. The contractor pilot is the pilot in command.
- f. A contractor flight release is not required for all contractor ground and flight operations per DLAM 8210.1/AR 95-20/AFR 55-22V1/NAVAIRINST 3710.1C. Operation within the prescribed limits of the aircraft configuration specified in an existing airworthiness release or statements of qualification can be authorized by the contract and used by contractors providing maintenance and other non-developmental flight operations.

3-7. Airworthiness release application criteria

- a. The USAAMCOM has engineering cognizance.
- b. The aircraft system, subsystem, allied equipment or modification is a nonstandard system not covered by a statement of qualification or airworthiness approval by another agency or incorporates a temporary, interim or special mission specific change.
- c. The system will be operated by Army crew members.
- d. Interim operating and prescribed limits must be provided until the technical manuals are changed.
- e. Authorize Army test pilots to conduct preliminary airworthiness evaluation, airworthiness and flight characteristics, and other Government flight tests.
- f. Authorize Army pilots to conduct operational testing necessary to complete qualification.
- g. Interim change to operating procedures and prescribed limits authorizing operation after incorporation of a new military work order until the technical manuals are updated and the modification is incorporated in the interim statement of airworthiness qualification or statement of airworthiness qualification.
- h. Adoption of airworthiness approval by another agency that will be the basis for derivative changes under USAAMCOM engineering cognizance.
- i. An airworthiness release is not used to notify the field of changes to the airworthiness status of standard equipment (including changes to prescribed limits) where a safety of flight or aviation safety action message is appropriate per AR 95-1 (see AR 95-1, chap 6).

3-8. Interim statement of airworthiness qualification application criteria

- a. The USAAMCOM has engineering cognizance.
- b. The aircraft system, subsystem, allied equipment, or modification has reached a preliminary or provisional state of qualification to both the customer's and airworthiness requirements.
- c. The aircraft system is required to be fielded prior to completing qualification.
- d. The aircraft system will be operated by Army crew members.
- e. The aircraft system configuration is intended to be type classified standard materiel.

- f.* Use of the aircraft system is required prior to completion of the full qualification process.
- g.* This statement should be revised to add officially promulgated modification work orders to the standard configuration.

3–9. Statement of airworthiness qualification application criteria

- a.* The USAAMCOM has engineering cognizance.
- b.* The aircraft system, subsystem, allied equipment, or modification has reached a state of complete qualification to both the customer's and airworthiness requirements.
- c.* The aircraft system configuration is being fielded as type classified standard materiel.
- d.* The aircraft system will be operated by Army crew members.
- e.* The Airworthiness Qualification Substantiation Report is complete.
- f.* This statement normally completes the full qualification process ending the airworthiness qualification program.
- g.* This statement should be revised to add officially promulgated modification work orders to the standard configuration.

3–10. Airworthiness approval application criteria

- a.* Another agency has engineering cognizance of the aircraft system.
- b.* Modifications to meet Army requirements are within the original airworthiness authority's purview and authorization (for example the FAA does not provide airworthiness approval to fire weapons).
- c.* The aircraft system will be maintained to meet the cognizant airworthiness authority's requirements for continued airworthiness.

Appendix A References

Section I Required Publications

AR 95–1

Flight Regulations (cited in paras 2-5k, 2-6b, and 3-7i).

AR 385–16

System Safety Engineering and Management (cited in para 2-6a).

DA PAM 738–751

Functional Users Manual for the Army Maintenance Management System-Aviation (TAMMS-A) (cited in para 2-5k).

DLAM 8210.1\AR 95–20\AFR 55–22v1\NAVAIRINST 3710.1C

Contractor's Flight and Ground Operations, Volume 1 (cited in paras 2-1b, 2-1f, 3-5, 3-6c, and 3-6f).

DOD List 5010.12–L

Acquisition Management Systems and Data Requirement Control List (cited in para 2-5d).

Section II Related Publications

A related publication is a source of additional information. The user does not have to read a related publication to understand this regulation.

AR 11–2

Management Control (cited in title page)

AR 25–400–2

The Modern Army Recordkeeping System (MARKS) (describes the system for maintaining and marking records, such as the ones required by para 2-5j of this regulation.)

AR 70–1

Army Acquisition Policy (see para 1-4n on safety risk management in the acquisition process)

AR 70–25

Use of Volunteers as Subjects of Research (includes aircraft test in para 1-4 and exempts personnel qualified to perform tests in para F-1)

AR 700–138

Army Logistics Readiness and Sustainability (includes the reporting of materiel deficiencies, reporting systems status, and lists of standard systems)

AR 750–1

Army Materiel Maintenance Policy and Retail Maintenance Operations (see Component Safety Program, para 4-46)

Section III Prescribed Forms

This section contains no entries.

Section IV Referenced Forms

This section contains no entries.

Appendix B Airworthiness Process Elements

Elements of the airworthiness process are diagramed in figure B-1 below to assist in understanding how these elements are related.

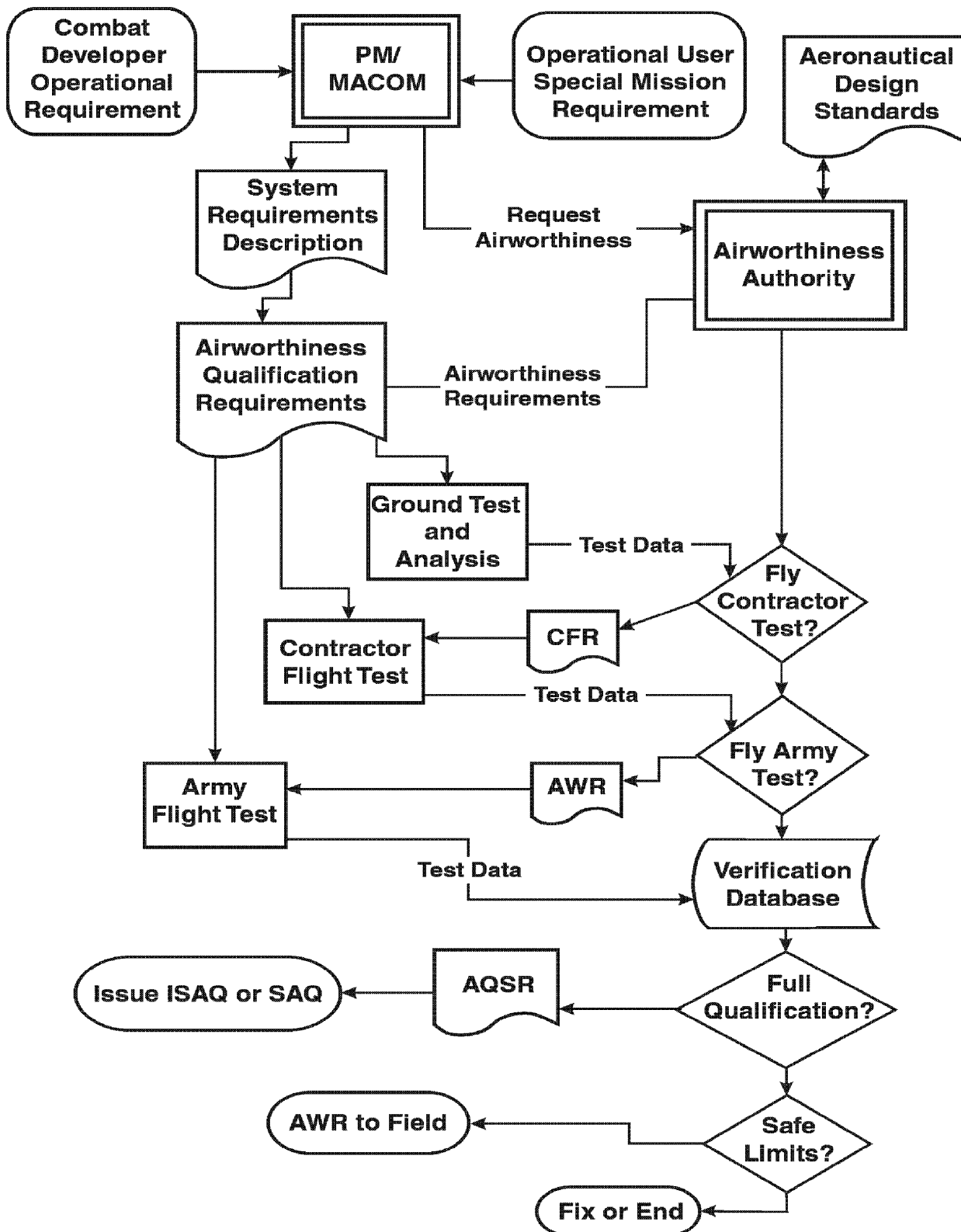


Figure B-1. Airworthiness process elements

Glossary

Section I Abbreviations

AA

Active Army

AMC

United States Army Materiel Command

ASA(ALT)

Assistant Secretary of the Army for Acquisition, Logistics, and Technology

ASAM

Aviation Safety Action Message

ATTN

Attention (used in addresses followed by a name or office symbol)

CG

commanding general

COTS

commercial off the shelf

CTP

coordinated test program

DA PAM

Deputy of the Army pamphlet

DCSLOG

Deputy Chief of Staff for Logistics

DOD

Department of Defense

FAA

Federal Aviation Administration

GFR

Government flight representative

HQDA

Headquarters, Department of the Army

MACOM

major Army command

MWO

modification work order

NG

National Guard

PEO

Program Executive Office

PIP

Product Improvement Program

PM

program manager, project manager, or product manager

SOF

Safety of Flight message

SSRA

System Safety Risk Assessment

TM

technical manual

USAAMCOM

United States Army Aviation and Missile Command

USAR

United States Army Reserve

Section II**Terms****Aircraft allied equipment**

Equipment that is installed as an integral part of an aircraft system but is not required for flight (for example, a weapon that is attached to an aircraft).

Aircraft subsystem

Equipment that is installed as an integral part of an aircraft system that, if inoperable or removed, will prevent the aircraft from flying or make it unsafe (for example, helicopter tail rotor assembly).

Aircraft system

A self-powered aerial vehicle, excluding ground effects machines, that may be flown by a human pilot.

Army aviator

Army personnel possessing an aeronautical designation awarded by the army authorizing them to pilot Army aircraft when ordered to do so by competent authority and with current flight status.

Modification

Any alteration, after production, to an item of materiel type classified standard-A, standard-B, or limited production, made by either Government or contractor personnel. Activities commonly known as retrofit, conversion, remanufacture, design, change, engineering change, and the like are included in the definition.

Technical manual

A manual providing detailed treatment of specific subjects considered necessary for the full accomplishment of required training. A technical manual also contains descriptions of materiel and instructions for the operation, handling, and maintenance and repair thereof, information and instructions on technical procedures, exclusive of those of an administrative nature.

Section III**Special Abbreviations and Terms****AQSR**

Airworthiness Qualification Substantiation Report

AWR

airworthiness release

CFR

Contractor flight release

ISAQ

interim statement of airworthiness qualification

SAQ

statement of airworthiness qualification

Aeronautical design standards

A complete collection of current technology design standards covering the engineering of aircraft systems and subsystems (including hardware with applicable software and crew in the loop) design, integration, and performance.

Airworthiness

A demonstrated capability of an aircraft or aircraft subsystem or component to function satisfactorily when used within prescribed limits.

Airworthiness release

A technical document that provides operating instructions and limitations necessary for safe flight of an aircraft system, subsystem, or allied equipment.

Airworthiness approval

Any technical document issued by an airworthiness authority that provides operating instructions and limitations necessary for safe flight. As used herein it refers to approval from an airworthiness authority other than the Army.

Airworthiness authority

A U.S. Government agency having engineering cognizance over a particular aircraft system, subsystem, or component and responsibility for determining the capability of that aircraft system, subsystem or component to function satisfactorily when used within prescribed limits. Also includes any foreign authority whose airworthiness approval has been accepted by a U.S. agency described above.

Airworthiness qualification substantiation report

A technical summary describing the scope of the qualification and its results, including prescribed limits, and a compilation of each requirement indexed to its status of demonstrated compliance and references to the verifying technical substantiation (including analysis, inspections, drawings, modeling, simulations, test plans and test results, and any other relevant technical data).

Carry-on equipment

Any portable device that can be hand carried on-board by crew or passenger for the purpose of its operation in-flight.

Contractor flight release

A technical document that provides a set of operating instructions and limitations, based on available engineering analysis and testing, for contracted experimental or engineering test flight operations for new or modified, aircraft system, subsystem, or allied equipment.

Flight, other piloted, and test operations

All operation of the aircraft that includes intentional take-off and flight, certain ground operations where a pilot is required at the controls, and any experimental or engineering test necessary to determine limits. For rotary wing aircraft this includes ground operation of the aircraft's main engine or engines.

Interim statement of airworthiness qualification

A document establishing a preliminary or provisional qualification status and an airworthiness release when issued in conjunction with the Airworthiness Qualification Substantiation Report.

Prescribed limits

The full authorized range or envelope of operating, environmental, and sustaining criteria or characteristics for the safe and reliable use of the aircraft system, subsystem, or allied equipment as determined by analysis, tests, and operating experiences.

Statement of airworthiness qualification

A final document establishing full qualification status and airworthiness release that is issued in conjunction with the Airworthiness Qualification Substantiation Report normally completing an airworthiness qualification program.

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